

What Is Claimed Is:

1. An apparatus for varying the dimensions of a vessel hull comprising:
an assembly having a plurality of members pivotally joined, said assembly
operatively arranged to form a portion of said vessel hull, said assembly operatively arranged to
5 extend and retract to vary the dimensions of said hull when said plurality of members are pivoted
with respect to one another.
2. The apparatus recited in Claim 1 further comprising pneumatic means operatively
arranged to extend and retract said assembly.
3. The apparatus recited in Claim 1 further comprising hydraulic means operatively
10 arranged to extend and retract said assembly.
4. The apparatus recited in Claim 1 further comprising microelectromechanical
systems (MEMS) means operatively arranged to extend and retract said assembly.
5. The apparatus recited in Claim 1 further comprising a flexible membrane, said
membrane connected to said hull around the periphery of said membrane, said membrane
15 operatively arranged to cover said assembly, said membrane operatively arranged to extend and
retract as said assembly extends and retracts.
6. The apparatus recited in Claim 5 wherein said membrane comprises urethane.
7. The apparatus recited in Claim 5 wherein said membrane is connected to said hull
with a watertight seal.
- 20 8. The apparatus recited in Claim 5 wherein said membrane is operatively arranged
to retract in an iris-like fashion when said assembly is retracted.

9. The apparatus recited in Claim 1 further comprising a plurality of plates, said plates operatively arranged to cover said assembly when said assembly is substantially fully extended.
10. The apparatus recited in Claim 8 wherein said plates for a watertight seal with
5 said hull when said assembly is substantially fully extended.
11. The apparatus recited in Claim 1 wherein said assembly is operatively arranged to extend and retract in an iris-like fashion.
12. The apparatus recited in Claim 1 wherein said vessel is a waterborne vessel.
13. The apparatus recited in Claim 1 wherein said vessel is a submersible vessel.
- 10 14. The apparatus recited in Claim 1 wherein said vessel is an airship.
15. A vessel comprising:
a hull;
an assembly having a plurality of members pivotally joined, said assembly operatively arranged to form a portion of said hull, said assembly operatively arranged to extend and retract to vary the dimensions of said hull when said plurality of members are pivoted with respect to one another.
16. The vessel recited in Claim 15 further comprising pneumatic means operatively arranged to extend and retract said assembly.
17. The vessel recited in Claim 15 further comprising hydraulic means operatively arranged to extend and retract said assembly.
- 20 18. The vessel recited in Claim 15 further comprising microelectromechanical systems (MEMS) means operatively arranged to extend and retract said assembly.

19. The vessel recited in Claim 15 further comprising a flexible membrane, said membrane connected to said hull around the periphery of said membrane, said membrane operatively arranged to cover said assembly, said membrane operatively arranged to extend and retract as said assembly extends and retracts.
- 5 20. The vessel recited in Claim 19 wherein said membrane comprises urethane.
21. The vessel recited in Claim 19 wherein said membrane is connected to said hull with a watertight seal.
22. The vessel recited in Claim 19 wherein said membrane is operatively arranged to retract in an iris-like fashion when said assembly is retracted.
- 10 23. The vessel recited in Claim 15 further comprising a plurality of plates, said plates operatively arranged to cover said assembly when said assembly is substantially fully extended.
24. The vessel recited in Claim 23 wherein said plates form a watertight seal with said hull when said assembly is substantially fully extended.
25. The vessel recited in Claim 15 wherein said assembly is operatively arranged to extend and retract in an iris-like fashion.
26. The apparatus recited in Claim 15 wherein said vessel is a waterborne vessel.
27. The apparatus recited in Claim 15 wherein said vessel is a submersible vessel.
28. The apparatus recited in Claim 15 wherein said vessel is an airship.